experience. But the conditions operative at the time of reproduction may be such as to make unmodified reinstatement impossible. They may be such that if the parts are revived without alteration, their relation cannot be reinstated; or inversely, if the relation is reinstated, the related presentations must be modified. It may happen, and very commonly does happen, that the presentation which starts the reproductive process is not a mere repetition of the corresponding constituent of the original whole. It may vary considerably from this original constituent without losing its regenerative tendency. Suppose the original combination to be \(ab\), where \(a\) stands to \(b\) in a certain relation \(r\). Suppose \(a\) to recur in the modulated form \(a'\). Inasmuch as a partake of the nature of \(a\), it will tend as far as may be to reconstitute the whole \(ab\). But the difference between \(a\) and \(a'\) may be such as to require a corresponding differentiation of \(b\) if the relation \(r\) is to be reinstated. It may happen that \(b\) cannot assume the same relation to \(a'\) as that in which it stood to \(a\). Thus the revival of \(b\) will not be a reconstitution of the original whole, because the relation \(r\) has disappeared. On the other hand, if the relation \(r\) is recalled, the other term of the relation must be modified. For \(b\) there must be substituted \(b'\), which is related to \(a'\), as \(b\) was related to \(a\). This is a relative suggestion.

What actually takes place on any given occasion depends on the special conditions operative at the time. The more fully and intensely we are interested in the whole as such, the stronger will be the tendency to revive the relation \(r\) and to modify \(b\) so as to transform it into \(b'\). This tendency may take effect at once, so that \(a\) immediately calls up \(b\) without the previous intervention of other mental processes. Thus in the very act of making a pun or a rhyme we may alter the nuance of a word. If we are looking for a place on a map which we know by actual travelling to be a certain distance from London, we allow for the difference in scale between the actual distance and that on the map without express comparison or explicit formulation. The intuitive plays of children are full of such mental accommodations, the doll, for instance, being treated as a baby student variante.

In such cases relative suggestion operates or may operate immediately, in others it does not take effect without an intervening mental operation involving express comparison between the present case and its analogue. But, in either case, in order to explain what
RELATIVES

is meant, it will be necessary to explain how they are three tails, or the three letters i, j, k, differ. The order shows which of the three letters is the middle one, which gives, which member.

Relations may be more or less general like other terms, that is, our relative may be predictable of members of a set of which another is not, while the letter is predictable only of members of sets of which the former is predictable. By a set is meant an ordered system, so that A and B or C, though the same collection, are different sets. As any general to nearly three of any one set of individuals, so a relative is predictable of any one of an aggregate of sets; and each such set may be regarded as an individual. As a system is an individual of such a system, it is a three set of individuals, which consists in certain things being true of certain other individuals, called its members, regardless of the system. A system is either a set, sequo, or a collection, or it is a set. A set of individuals which, if anything is true, its three consists of the truth of one predicate for any one of the members. A set of system is a system of which the truth of anything consists in the truth of a different predicate. Of course the idea of relation is involved in the idea of a system. As it is very important for the understanding of relations that the conception of a system should be precisely clear, let us consider the letter a moment in its simplest form, that of a two-place relation. A two-place relation is a sort of thing. Then, it is true of it that it contains the three first letters of the alphabet, because it is true of the three of that contains in A, B, C, so that is being each one of the three first letters of the alphabet. A two-place relation is a different sort of being true, because it contains nothing but the first letters of the alphabet, because it is true of A, B, C, so exactly that is nothing but one of the first three letters of the alphabet. A two-place relation is a different sort of being true, it is not true of which is A, not true of A, B, C, so may be regarded as a sort of thing which we use the word A in its first interpretation of being, but it is not true of A, B, C, anything more. This point may be said to be an example of something, but is that it contains nothing, but the thing which is true in every collection, which may be said to be an example: E. This point we shall return. Even Nothing is a collection to be formed. For when we say that Nothing is a collection, we mean that Nothing is a collection, which may be said to be an example of anything, but is also Nothing of a Nothing of a Nothing of the collection is 2, and it is said to be so, and not an example of a Nothing. As to this we do mean that a self-substituting individual is so, and that an one results whose mode of being consists in the absence of everything is less than 1. The same of A, B, C, is not than A, B, C. But should it say that A, B, C, two of the letters of Caesar's first name, and subsequently learn that there was a mistake, the real name being Gaius, that would not make A, B, C, a different sort.

That in the reality which corresponds to a proposition with a relative predicate is called the fundamentums relationes. A relation is a system of such fundamentals. Relation is the relative character, conceived as belonging in different ways to the different relations, and (owing to the logical equivalence) the result given by familiar language to one of those) especially to the case which is denoted by the noun which is the subject of the proposition.

Relatives and relations are said to differ in their order, according to the members of their relations. Dyadic or dual relations, or relatives of two relations, of which the second is called the correlate, differ somewhat widely from plural, or polyadic relations. Triadic relations have all the principal characters of triadic and higher relations. In fact, a compound of two triadic relations may be a tetra-

RELATIVES

called relative progressive implication. Polyadic relatives are capable of other modes of occurrence. Thus, it may be said that anything whatever, X, being taken, something else, Y, is, A, a pair of it, 5, while X maligns Y, 5; that is, A praises everybody to somebody malignd by him to B. Or we may say that there is something Y, such that whatever X may be, if A praises Y to X while X maligns B to B; or, if A praises everybody to somebody whom everybody maligns to.

Deductive logic can really not be understood without the study of the logic of relatives, which separates incomprehensible series into which not merely logicians, but people who never opened a logical book, fail from confusion. All the question is, the truth of the case is indeed evident without going into One such error is that demonstrative reasoning is something altogether unlike observation. But the intrinsical value of inference of relative logic call by such studied scrutiny of the representations of the facts which represent cases and relations are of an iconic kind, in that they represent relations in the fact by analogous relations in the representation, that we cannot fail to remark that it is by observation of diagrams that the reasoning proceeds in such cases. We succeed in simplifying them and are always remark that such observation is required, and that it is even true, and no objection to the conclusion of a simple syllogism is seen in its premises.

Again, non-relative logic has given logicians the idea that the deduction of other reasoning was a following of a rigid rule, so that machines have been constructed to draw conclusions. But to these is the result of our deductive reasoning, even the machines, which are deductive are, like the machines, not deductive. It then becomes possible to study their relations, and the study of these relations discovery already made reposing analogous relations. In this way, for example, operations become themselves the subjects of operations.

It is true that a more elementary example—from the idea of a particle moving, we pass to the idea of a particle describing a line. This line is therefore thought as moving, and as generating a surface; and so the relations of surfaces become the subject of thought, not the ends of the line. Deductive logic is the investigation of an one result whose being consists in the truth of an ordinary predication. A collection, or system, is an entity, or an abstract one; and the whole doctrine of number is founded on the system of abstraction. If we conceive an object to be a collective whole, but in so to be in such a way that it has no parts which is said to be a whole. In the case of Kant, we have seen how Kant's view of abstract coincide in a sense, and we have not distinguished merely as having additional characters; but if the collection is a set, whose members have other relations to one another, it is a continuous.
The logic of continuo is the most important branch of the logic of relatives, and mathematics, especially the geometry, has its development rather from the lack of a developed logic of continuo.

Literature: relatives have, since Aristotle, been a recognized topic of logic. The first germ of the modern doctrine appears in a somewhat trivial remark by Robert Boyle in 1657: (Phil. Trans., 1, 251-253). He here sketches out the theory of dyadic relations. C. S. Peirce, in 1878, extended Boyle's algebra so as to apply to and, after many attempts produced a good general theory of logic, together with another algebra specially adapted to dyadic relations (Studies in Logic, by members of the Johns Hopkins University, 1885, Note II, 187-203). Schröder developed the last in a systematic manner which brought out its glaring defect of involving hundreds of merely formal theorems without any significance, and some of them quite difficult. The third volume of his Zaire Logik (1890), Schröder's work contains much else of great value. Peirce has published only three papers since 1880, one of which appeared in the Amer. J. of Math., vol. 1884-1885, and the other in the Monist, vol. 1894-1895. An important work in which relations are treated graphically is A. B. Kempe's Theory of Mathematical Form, published in the Philos. Trans. of 1891. Other workers are Joseph J. M. Murray, Alexander MacFarland, Giuseppe Peano, Georg Cantor, Richard Dedekind, and others have treated relations of quantity, and their writings—especially Dedekind's book, Essays on the Theory of Numbers (Eng. trans., 1890)—are particularly recommended to students of philosophy. Translations of parts of some of Cantor's memoirs into most puzzling French are given in the Acta Mathematica, ii; the Math. Annalen, xiv and xvi) contain others of great importance; and Cantor especially addressed students of philosophy in his Zur Lehre von der Vorgeschichte der Mathematischen Abhandlungen (1890). This book contains papers originally printed in the Zeitschrift für Math. und Phys. (1890) and Jahrbuch der mathematischen, Math. Annalen, in recent numbers of the Amer. J. of Math.

Relativity: Gev. Relativität; Fr. relativité; Itl. relatività. That element in the determination of a thing or object which arises from its relatives (q.v.) to other things or objects. See the following topics. (C.M.R.)

Relativity (affine). The liability of affective states to modification by other affective states. Applied (1) to pleasure and pain, which are said to be relative to each other; an extreme form, holding that pleasure is only absence of pain (cf. the literature of pain and Psychotherapy, the 'relational theory'); (2) to emotions, considered as liable to modification from one another. See Contrast (affine).

Relativity (in psychology, law of): Ger. Beziehungswesen, Gesetz der Relativität; Fr. loi de relativité; Itl. legge dei relazioni (or relazione). (1) The law that every phase of experience is influenced by every other phase of our experience of the moment, and also by the whole past history of our consciousness. It is employed by Wundt to explain Weber's law, certain geometrical optical illusions, visual contrast, temperature adaptation, etc. Experimental psychology has, however, in general preferred to look to physiology for the conditions of such mental facts as laws (Wundt, Physiol. Psychol., 4th ed., p. 392, 397, 410, 562; Human and Animal Psychol., 4th ed., 188, 242). In Wundt's Grundriss (1879) the law of relativity assumes a thorough form: the law of psychical results, the law of relations, and the law of psychical contrasts. This theory is known as that of the 'relativity of some qualities.' Cf. Contrast (various topics). (E.R.S.)

(2) The theory defined under RELATIVITY (1).

Relativity of Knowledge: Ger. (1) Relativismus, Relativität der Erkenntnis; Fr. relativité de la connaissance; Itl. relatività della conoscenza. (1) This term seems most properly to denote the theory that all human knowledge is relative to the human mind, in the sense that we can only know of things, the effects which they produce upon our minds, and not what they themselves are like. Cf. Existence. The theory is thus, as it stands, doubly self-contradictory, since it combines the proposition (a) that each of us can know nothing but what is in his own mind, whence it follows that he cannot know that anything but his own mind exists; with the propositions (b) that we do know what is in our minds is an effect of other things; and (c) that this is true of us, i.e. that more than one